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TITLE: Telemedicine Evaluation of Spinal Deformity

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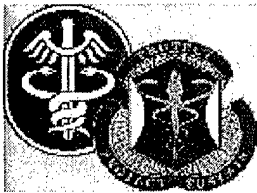
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MidTerm Overall Evaluation Report



PROPOSAL: 2000000056

TITLE: Telemedicine Evaluation of Spinal Deformity

ACCOMPLISHMENTS

The original proposal hypothesized that through the use of telemedicine, spine specialists would be able to diagnose and treat patients in remote locations.

The initial proposal requested \$350,000 to accomplish stated objectives. Awarded less than half of our original request, the project was revised to reflect the awarded amount. An exempt protocol "A retrospective and controlled study to evaluate the ability of scoliosis/spine specialists to arrive at a treatment decision by telemedicine" was submitted to the WRAMC Department of Clinical Investigation and sent to Louise Pascal, Human Subjects Protection Specialist (AMDEX Corporation), U.S. Army Medical Research and Materiel Command, Office for Regulatory Compliance and Quality at Fort Detrick, Maryland. The exempt protocol states that:

"In the diagnosis and treatment of scoliosis, most spine specialists agree on the following: § curves of <10° are not considered scoliosis § curves between 10° and 25° require observation § curves of 25° - 45° with 2 years of growth remaining require bracing § curves of >45° require surgical intervention

Outpatient records and radiographs of patients referred to the primary investigator in the scoliosis clinic will comprise the study cohort. From these records, twenty patients with an initial recommendation of "observation" will be pulled for analysis. In addition, twenty patients each with the initial recommendation of "bracing" and of "surgery" will be pulled for inclusion in the study. All sixty radiographs will then be captured with a Vidar scanner and photographed with a digital camera. The images and an initial patient history will then be electronically transmitted to three independent fellowship trained spine surgeons for evaluation and initial treatment recommendation. Radiographic measurement of the scoliotic curve will be recorded. Interobserver and intraobserver variability between individual patients and viewing techniques will be recorded and analyzed with a difference in curve magnitude defined as > 5 degrees. Major disagreement (defined as a difference in treatment recommendation from review of the patient history and radiographic images) will also be recorded. Finally, these findings will be compared to the initial in-person recommendation to assess the ability of scoliosis specialists to arrive at a treatment decision by two separate telemedicine techniques."

The submission was approved (Protocol #01-24012E) on March 20, 2001 and forwarded to CIRO and MRMC RCQ. Approval per Julie Zadinsky MRMC RCQ June 19, 2001 (log#10235)

A Statement of Work and Project Charter was completed. Supplies and equipment were ordered. The Project Coordinator position of Computer specialist, Junior was begun March 15, 2001 and is being job-shared by two individuals.

To date, the sixty patients comprising the study cohort have been identified Their spine A/P and Lateral radiographs have been pulled and scanned onto the computer workstation and saved to the hard drive. In addition, digital photographs of each film have been taken and downloaded to the hard drive of the computer workstation. An electronic patient history has been designed with the help of WRAMC telemedicine department.

PI's Accomplishment Evaluation: : Project accomplishments are close to proposal

PROBLEMS

Space for the project was an issue that was resolved by the Telemedicine department allowing this project and its project coordinators the use of a corner office of the space allocated to telemedicine in building two on the sixth floor.

The Dell (PO#84514) workstation computer and Nikon Digital Camera were slow to arrive but have been received.

PI's Problem Area Evaluation: : Project encountered no significant problems/issues

LIFE-CYCLE

The 60 patient histories need to be retrieved and electronically loaded onto the computer work station. A final check will be made to ensure that all sixty patients have been identified, their A/P and Lateral radiographs pulled, the films photographed, scanned and saved to the hard drive. Digital images together with the patient history and scanned images together with the patient history will separately be sent to the FTP site. The three spine specialists will download digital images together with history, render an opinion (observe, brace or surgery) and return diagnosis and treatment recommendation to the FTP site. They will do the same for scanned images. Radiographic measurement of the scoliotic curve will be recorded. Interobserver and intraobserver variability between individual patients and viewing techniques will be recorded and analyzed with a difference in curve magnitude defined as > 5 degrees. Major disagreement (defined as a difference in treatment recommendation from review of the patient history and radiographic images) will also be recorded. Finally, these findings will be compared to the initial in-person recommendation to assess the ability of scoliosis specialists to arrive at a treatment decision by two separate telemedicine techniques.

PI's Life-Cycle Evaluation: : Project encountered no significant problems/issues

DELIVERABLES

Diagnostic concordance will be determined between: • Real time evaluation of patient, history and films with • E-history and digital photography of film and • E-history and scanned radiographic images

A paper will be the final result of the project.

PI's Deliverables Evaluation: : Deliverable is on schedule per Proposal

Expenditures

| Element of Resource (EOR) | 1ST Quarter Oct 1 - Dec 31 | 2nd Quarter Jan 1 - Mar 31 |
|-------------------------------|-------------------------------|-------------------------------|
| Travel 2100 | \$0.00 | \$2,000.00 |
| Shipping 2200 | \$0.00 | \$0.00 |
| Rent & Communications 2200 | \$0.00 | \$0.00 |
| Contract for Services 2500 | \$92,156.16 | \$32,278.89 |
| Supplies 2600 | \$584.00 | \$0.00 |
| Equipment 3100 | \$5,668.04 | \$17,348.07 |

Financial Narrative:

The project and budget were revised to work within the monies awarded.

PI's Financial Evaluation: : $\frac{1}{1.10} \times 100 = 90.91\%$ (100% - 9.09% cost of capital)

*** END OF REPORT ***